Assignment 1

Intermediate Microeconomics (I)
Instructor: Yan Li
Due on Thursday, October 17, 2019

1、(40 points) In each of the following examples, a consumer purchases just two goods: x and y. Based on the information in each of the following parts, sketch a plausible set of indifference curves (that is, draw at least two curves on a set of labeled axes, and indicate the direction of higher utility). Also, write down a utility function u(x, y) consistent with your graph. Note that although all these preferences should be assumed to be complete and transitive (as required for utility representation), not all will be monotone.

(a) (8 points) Jessica enjoys bagels x and coffee y, and consuming more of one makes consuming the other more enjoyable.
(b) (8 points) Plamen loves mocha swirl ice cream x, but he hates mushrooms y.
(c) (8 points) Jennifer likes Cheerios x, and neither likes nor dislikes Frosted Flakes y.
(d) (8 points) Edward always buys three white tank tops x for every pair of jeans y.
(e) (8points) Nancy likes both peanut butter x and jelly y, and always gets the same additional satisfaction from an ounce of peanut butter as she does from two ounces of jelly.

2、(30 points) A consumer's preferences are representable by the following utility function:

$$u(x,y) = x^{1/2} + y$$

(a) (15 points) Obtain the MRS of the consumer at an arbitrary point (x, y), where x> 0 and y> 0.
(b) (15 points) Suppose the price of good (y) is 1, and the price of the good (x) is denoted by $p_x > 0$. If the consumer's income is m > 0, obtain the optimal consumption bundle of the consumer (in terms of m and p_x). [Caution: make sure you cover cases in which m is relatively low, as well as cases in which m is relatively high.]

3、(30 points) A consumer's preferences are representable by the following utility function:

$$u(x,y) = \ln(x+3) + \ln(y-2)$$

where $x \geq 0$ and $y > 2$, the price of good x is p_x, and the price of good y if p_y. The consumer has m to spend.

(a) (10 points) Derive the consumer's demand for good x and good y as a function of $p_x, p_y,$ and m.

(b) (10 points) Is the good x a normal good or an inferior good? why
(c) (10 points) Is the good x an ordinary good or a Giffen good? Why?